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Foods that are Drugged



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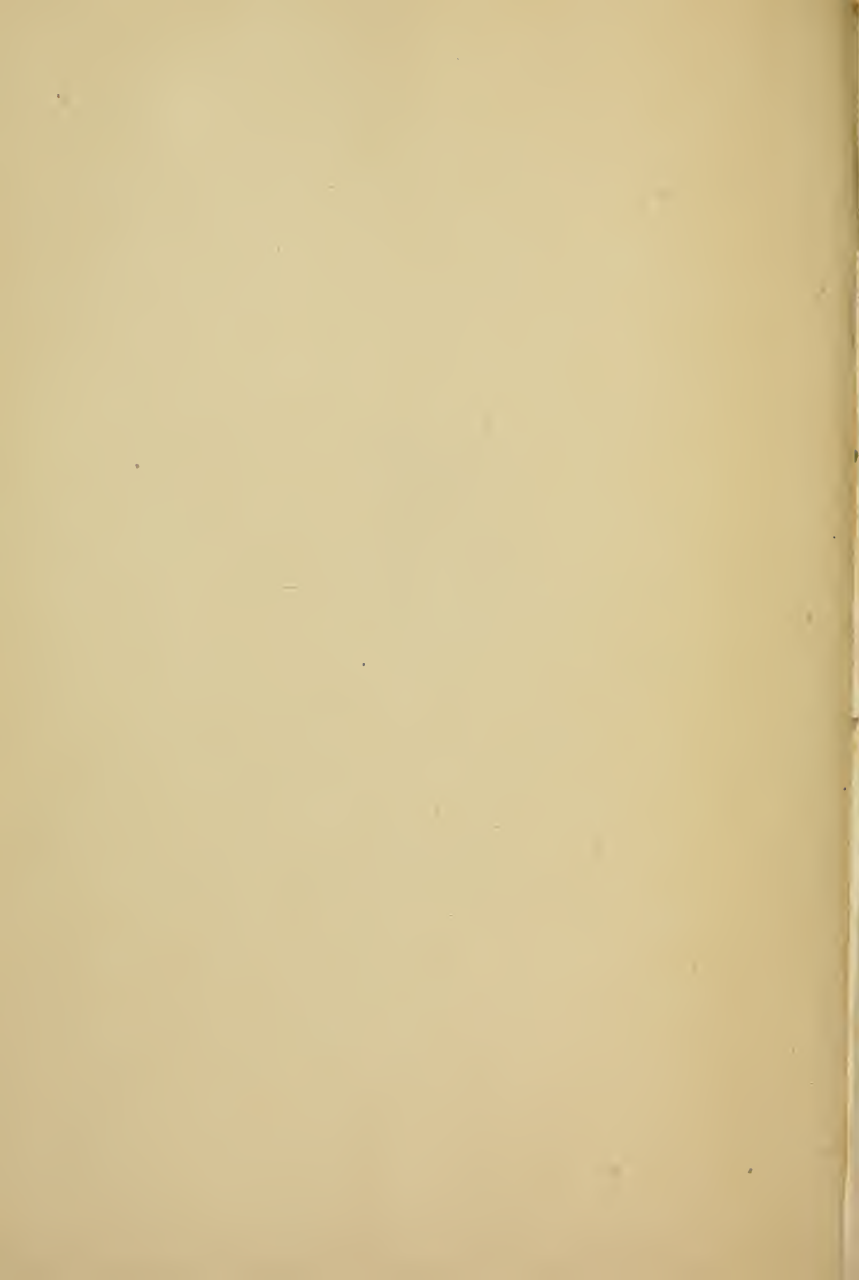




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BEQUEST OF
ALBERT ADSIT CLEMONS
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Foods That Are Drugged

BY
DR. LEON ELBERT LANDONE

Let us be just in our demands upon the manufacturers;
let us be sane in the requests we make of our representatives in state and national legislation;
but let us demand the truth as to what we
ourselves eat and as to what food we
furnish those who are dear to us.

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Aug. 24, 1938

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FOR WHOM

This booklet is written to inform the people of the condition of the food and food preparations which they daily use.

There are already on the market splendid publications for analysts, chemists, food commissioners and physicians, but practically nothing written in simple language and free from technical terms for the great mass of people.

BASED UPON THE WORK OF CHEMISTS OF NATIONAL REPUTE

The author's statements as to adulterants used are based upon the facts presented (1) in the various reports of state chemists and food commissioners, (2) in the bulletin reports of the Department of Agriculture of the United States Government, (3) in "Food Analysis" by Leffman and Beam, (4) in "Food Inspection and Analysis" by Albert E. Leach and (5) in "Coal Tar Colors" by Lieber. Both Dr. Leffman and Dr. Beam, authors of "Food Analysis," are noted scientists and expert chemists. Henry Leffman is an A. M., M. D., Ph. D. William Beam is an A. M., M. D., F. I. C. Albert E. Leach, S. B. is Head Analyst of the Massachusetts State Board of Health. Massachusetts was the first state to adopt a practical system of food and drug inspection. Thus the results of twenty years of investigation are the basic foundations for the statements of "Food Inspection and Analysis."

THE DEMAND OF TO-DAY

The voice of the people is heard. They are demanding that they shall know what they are eating and for what they are spending their money.

Is it not strange that we, the American people, claiming to be free and unfettered, are compelled by civic and commercial conditions to carry on a great contest in our national legislature to secure the passage of a law which will make it possible for us to know *what* we are buying when we purchase our food products?

Is it not strange that a score or more of great food and drug corporations have hurried lawyers of insight and power to our national capital to attempt to prevent the passage of the present pure food bill. The purpose of this bill is not to hinder any manufacturer or dealer from making or selling any combination of food products and chemicals he may desire to combine, but simply to make it impossible for combined products to

be transferred from one state to another unless the package is so labeled that the purchaser may know just what it contains.

Why have we not the right to know *what* we are buying? If you step to your phone and order "lamb chops" of your market dealer and the delivery brings you "dog meat," do you not feel you have a right to return it? If you order "strawberry jam" and get a mess of mashed apple pulp, glucose, saccharin and grass seed, have you not been swindled? Has not the dealer, or the manufacturer, or some one obtained money under "false pretences?" And yet we must literally fight for a law to prevent such deception. Let the manufacturers prepare apple pulp and grass seed, color it and sweeten it if they desire, but let the people know what it is they are buying. Are not the claims of the food trusts outrageous? Why should special favors be granted them? Are other commercial transactions conducted on the same principle? Are we not allowed to examine the real estate we purchase? Are we not allowed to choose the cloth out of which the tailor makes our clothes?

Imagine for a moment this principle applied to sales of other products than food substances.

I desire to purchase a home. I go to an agent and he informs me he has one, new and fitted

with all modern improvements, worth \$10,000. I ask how many rooms, what finish, what location, etc. He refuses to inform me, stating it is none of my business; I have no right to know the plan, the rooms, the finish, the location of the home he desires to sell me.

It is *called* a "home" and that is all I need to know. If I wish the house, pay my \$10,000 and find out afterward whether I like it or not.

I need a suit of clothes and go to my tailor. He will make me a good business suit for \$50. I ask to see the goods, to choose the trimmings, the style, etc.; he refuses,—that is none of my business. If I desire a good business suit he will make me one for \$50, but I am not to know of what it is composed and how it is to be made until after I have paid for it. The tailor *calls* it a "good suit" and certainly that is definite enough.

I desire to purchase a gallon of strawberry jam. I am not allowed to know its contents. It is *called* "strawberry," just as the real estate was *called* a "home" and the tailor's product a "good suit," and that should suffice.

The purpose of pure food laws is not to prevent the manufacture of pure artificial foods but to compel the maker to so label his products that

the purchaser may know just what he is buying and for what he is paying his money. Because of our industrial conditions, anything short of this is commercial robbery.

PURE FOOD VIEW POINTS

Every subject appears differently when the point of view is changed. In regard to the subject of pure foods there are so many essential departments which must be considered that several volumes are necessary even for elementary presentation.

THE ECONOMIC PHASE

This phase is certainly worthy serious consideration. Dr. Adams of the Kentucky State Board of Health finds his investigations seem to indicate that on the average forty-five cents out of every dollar paid for food is spent for adulterants. These if not poisonous and harmful are in most cases valueless as food.

We do not realize that the food trusts so prepare and chemicalize our foods that we pay for almost twice as much real food as we actually get; that some of the chemicals used greatly increase a man's appetite impelling him to demand

a greater quantity of food to satisfy his hunger than he really needs; and that of other chemicals used some hinder digestion one-half, thus preventing his organism from even getting the benefit of what real food he has eaten. Hindered or prevented digestion of one-half of the food eaten again induces him to increase the amount so as to maintain his strength. From an economic standpoint certainly most adulterated food manufacturers have the American working man on the hip.

HEALTH VIEW POINT

We shall never be able to make a reasonable, and probably a large enough, estimate of the thousands upon thousands of deaths in the United States caused by use of impure and adulterated food.

Why should we not say that the use of chemicals that stimulate a man's appetite beyond the normal and induce him to overload his system with poisons and waste products, is responsible for millions and millions of dyspeptic stomachs and catarrhal and constipated conditions of the intestines? It is well known that we are rapidly becoming a race of dyspeptics with all the at-

tendant weaknesses and diseases which result directly and indirectly from poor digestion and poisoned blood.

If man is supplied with good wholesome food, his senses of odor, taste and hunger will indicate what and how much to eat, thus preventing dyspepsia.

It is without doubt true that thousands of babies die each year from the use of impure milk. Dr. Harvey Wiley, Head of National Bureau of Chemistry writes: "Impure milk, I believe, is regarded as one of the principal causes of infant mortality during the summer months."

By sanitary conditions and personal hygiene we have decreased the death rate among children, but there is an increased death rate among the workingmen,—in factory, shop and office. Dr. McKitterick states that in the last ten years the increased death rate during the earning period is 23 per cent from kidney diseases, 20 per cent from heart disease and apoplexy, 13 per cent from cancer, and 8 per cent from pneumonia.

Dr. James Egan, Secretary of Illinois State Board of Health writes: "Undoubtedly undrawn poultry, flesh and game have caused many cases

of poisoning which have wrongfully been attributed to other causes. The poisoning resulting, often resembles that caused by other poisons administered by persons or taken with suicidal intent."

THE LEGAL PROBLEM

The legal question is a difficult one to solve. Whatever is done must be done for the benefit of the great mass of people. Manufacturers must be considered as secondary factors. Legislators and the people must be taught that all foods which are adulterated or artificially made may not be unfit food,—*may* actually be more perfect than the natural produce. Certain kinds of chemical colors have no ill effects upon the activity or structure of the human body, while other coloring matters are deadly poisons.

Some adulterated products may have a better proportion of food elements than the so-called pure products, while again many adulterants are without question irritants and violent poisons.

We have a right to know what we are buying, —we have a right to know *what* adulterants are used, what coloring matters are employed, and more than this, we have a right to know in so far as chemistry, toxicology, materia medica and

medical therapeutics can tell us, just what are the physiological effects of the adulterants used.

HOME EDUCATION

Not only do we wish every package or preparation of food labeled so we can tell what its ingredients are but we also demand a campaign of Home Education in Regard to Food Products and Adulterants so that the American housewife may know which food adulterants are poisonous and harmful and which are not. Much depends upon the mother and housewife. Miss Jane Addams of Hull House, Chicago, says:

"The fact is we would have had Pure Food Legislation long ago if the women of the country had demanded it. It is a woman's business to do so. Take any article of food you please and trace it back a hundred years and you will find that it was woman who originally selected the materials and did the preparing.

"I feel sure that if the bill now pending in the senate is to become law, it will have to come through the aroused sentiment of the women, whose traditional business it is to care for the purity of the food consumed."

The author has prepared a book for the housekeeper, furnishing the information necessary to

easily and simply test food products for the most common, harmful and expensive adulterants.

In this home educational campaign, let us be just in our demands upon the manufacturers, let us be sane in the requests we make of our representatives in state and national legislation, but let us demand the truth as to what we ourselves eat and as to what food we furnish those who are dear to us.

FOODS AND THEIR ADUL- TERANTS

BREADS

Gypsum, chalk, bone ash, soap and copper salts are sometimes found in commercial breads. Some bakery gingerbread is said to contain stannous chlorid and potassium carbonate. Finely divided tin is also sometimes found. When alum is found in bread, one may be quite positive that the blame should be placed upon the manufacturer of the baking powder used and not upon the flour manufacturer or the baker. Alum was once widely used, but the Bakers' Association has done much to discourage the use of this substance in making bread.

BUTTER

Butter is not to any great extent adulterated at present with foreign oils, but it is colored by various dyes and preserved with drugs; while

spoiled butter is renovated with chemicals and made to appear as good as unspoiled fresh creamery butter.

The coloring matters used are annatto, turmeric, marigold, saffron, safflower, azo and coal-tar colors.

It is preserved with borax, boric acid, formaldehyde, salicylic and sulphurous acids.

The old rancid butter is melted. Then air is forced through it to carry away the foul odor, after which it is doctored to make it taste and smell sweet for the time. Lastly it is re churned with a little skimmed milk and preserved with formaldehyde to give it a fresh appearance. This is "ripened" for a few hours and then pressed into bricks as good creamery butter for city trade.

CANNED GOODS

Fruits, vegetables or meat products preserved in cans may be made impure by (1) Accidental Impurities, (2) Preservatives, (3) Coloring Matters, (4) Adulterants and (5) Decomposed Products.

Accidental Impurities may result from decomposition due to the contents of the can not being thoroughly sterilized before sealing or from the action of the juices upon the inner surface of

the can or the boilers in which the fruit or vegetable has been prepared previous to canning. In decomposed canned fruits and vegetables it is not often that ptomaines are formed, though they occur in decomposed fish and meats. Taste and odor will usually indicate that decomposition has made the canned goods unfit for food.

Salts of lead and salts of tin are very commonly found in products preserved in tin cans. The corrosion of the inner surface indicates the amount of tin dissolved by the fruit and vegetable acids. Blueberries, pumpkin and rhubarb have been found to dissolve much more tin than the other fruits or vegetables examined. Canned sardines dissolve large quantities of the tin.

Salts of zinc and copper are probably due to vessels used in cooking the product to be canned.

Canned goods have often less preservatives than other forms of preserved food products. However, salicylic, benzoic and sulphurous acids are used.

Corn, peas, etc. are both bleached and colored. Sulphurous acid is used to bleach and sulphate of nickel and sulphate of copper are employed to green old peas, asparagus, etc. Often field corn and peas are soaked, softened by acids, bleached

and recolored so as to make choice brands of "Extra Choice Early June Peas" or "Sweet Corn."

These old peas and the field corn must be sweetened to resemble in taste "early peas" and "sweet corn." For this purpose saccharin is used, *one one-hundredth grain of saccharin retards digestion one-half.*

CHEESE

Cheese is often treated with "Cheese Spice" to prevent cracking. "Cheese Spice" is zinc sulphite. Arsenic has also been found as has lead chromate in the rind. The expensive "double cream" cheeses do not contain much more cream or fats than the common American cheese, but they do contain almost twice as much water. The filled cheese contains about 28 per cent of fats while the common cheddar contains 29 per cent, the Roquefor 30 per cent, and the Comembert 42 per cent. There is, however, considerable difference in the proportion of proteids.

CHOCOLATE

Husks are frequently ground up with the seeds in the cheaper grades of chocolate. The powder is often mixed with sugar, corn starch and cheap

flours. Talc, white clay, chalk and ground woods are also used. Brown iron oxide is used to color these diluted preparations. Copper sulphate, potassium, chromate and nickel sulphate have been found. Tin in a very minutely divided condition is sometimes used to give glow and luster to the chocolate. Paraffin, a white and oily indigestible substance, is added so that the chocolate cakes will not soften and lose their shape when slightly warmed.

COCOA BUTTER

This product is procured by great pressure being exerted upon the ground cocoa nibs. It is often adulterated with paraffin, beeswax, tallow, cottonseed oil, lard and arachis oil.

COFFEE

Imitation beans are sold in the wholesale market for mixing with the coffee beans. They are molded of clay, wheat flour, rye, peas and acorns, mixed with molasses. Ferrous sulphate has been detected in coffee. Chicory, roasted cereals, leguminous seeds, cocoa husks, burned borax and figs are used as coffee adulterants.

Coffee beans are faced with Scheele's green, ochre, chrome yellow, silesian blue, venetian red,

burnt umber, charcoal, indigo and ultramarine blue. Clay, gypsum, brown bread and red slate have been used.

Chemists can treat poor, green sour coffee beans so that they possess the taste and odor of the richest and best.

CONFECTIONERY

The chief constituents are usually glucose, dextrose, cornstarch, mucilaginous materials, paraffin, white clay, talc, gum, calcium sulphate, fusel oil, mineral colors, brown ferris hydroxid, and lead chromate.

Within the last few years the National Confectioners' Association has helped in eliminating many of the poisonous materials previously used, especially the mineral colors.

Yet, since chemists have discovered how to produce a substance 550 times as sweet as ordinary sugar, great quantities of cornstarch, paraffin, talcum, gums, etc., can be used and sweetened by just a particle of this condensed sweet so that the taste deceives one into believing that the candies are pure sugar.

Most candies contain saccharin which is not considered a poison, but one one-hundredth of a grain of this substance, as elsewhere mentioned,

retards digestion one-half. It certainly is from the use of such substances that our ever increasing army of dyspeptics gains its recruits.

Soda fountains advertising "*pure fruit syrups*" are selling adulterated, preserved, and colored if not entirely artificial products.

Paraffin is as much an ingredient of caramels and caramel creams, as sugar is, and sugar might as well be called an adulterant as wax.

Paraffin wax of "low melting point" is used by the carload in the manufacture of sweets. That is what gives to caramels and chocolate drops the peculiar feeling between the teeth when they are eaten. A firm in a certain eastern city that manufactures these delicacies used from two to three carloads of this wax a week as long as fifteen years ago; and has doubtless greatly increased in consumption since.

EGG SUBSTITUTES

Manufacturers have placed several kinds of egg substitutes on the market. These consist largely of starch and sugar and coloring matter. Two samples of these dry egg powders were analyzed and found to contain 73 per cent of corn starch and coloring matter and but 17 per

cent of protein and 3 per cent of fat. The normal egg contains no starch and about 12 per cent of fat.

Leach in "Food Inspection and Analysis," p. 210, writes:

"A ten-cent package of sample A, weighing about 2 ounces, was alleged to be equivalent to 12 eggs. Starch furnished the chief ingredient in both samples.

"One of the most flagrant examples of fraud in this connection was a product sold under the name "*N'egg*," advertised to contain the nutritive equivalent to the whites and yolks of a dozen eggs, 'their composition being based on careful scientific analysis of natural eggs.' It was put up in two small boxes, one containing a white and the other a yellow dry powder. *Both were entirely devoid of nitrogen, and consisted of nearly pure tapioca starch with a little common salt, the color of the 'yolk' being due to Victoria yellow.*"

The egg substitutes are colored with coal tar dyes, turmeric and annatto.

The many types and brands of "CUSTARD POWDERS" claiming to be made of egg products are usually composed of nothing but skim-milk

powder, baking powder, and coloring substances.

Of an examination of four samples the average composition was as follows: Starch 47 per cent, baking soda 31 per cent, tartaric acid 11 per cent, water 9 per cent, albuminoids 4 per cent, while the real egg is composed of about 70 per cent water, 12 per cent albumen and 12 per cent fat, essentially different from the "custard powders."

EXTRACTS AND FRUIT FLAVORS

VANILLA EXTRACT is generally made from the Tonka bean while LEMON OIL is often adulterated with turpentine oil. At least 93 per cent of our orange oil consists of citrene.

ARTIFICIAL FRUIT FLAVORS are prepared to resemble the natural essences of the fruits. Apple, pineapple and pear ESSENCES may be taken as examples. The artificial apple essence is usually composed of four parts of alcohol, four parts of sulphuric acid and five parts valerianic acid. Pineapple essence is made by mixing two parts butyric acid, two of alcohol and one part sulphuric acid. Pear essence is prepared by distilling the mixture of one part amyl alcohol, two

parts potassium acetate, one part concentrated sulphuric acid.

Nearly all the flavoring used in our confectioneries and ice-cream parlors are purely artificially prepared and colored with coal tar dyes.

FISH, OYSTERS, ETC.

The so-called CODFISH sold in cakes is seldom codfish. Salt petre, boric acid, and borax are used in the preservation of nearly all fish. Commercial CLAM JUICE and clam bouillon often contain salicylic acid.

"In nearly every article put on the market there is a great difference in the matter of grades. To all outward appearances the labels are identical, but the dealers know that one grade is numbered 1, another 2 and a third 3. The average buyer does not know about these numerals. They often buy a third grade article when they mean to buy a first grade article.

"The dealer knows these marks; we do not. SALMON, as an example, is put on the market in three grades. The first grade represents the first catch and is good, the best obtainable. The second grade is the second lot packed and is a little worse. The third grade usually is the salmon which the Indians bring in, half decayed,

wretched stuff. All these grades are put up and labeled just the same except for the little numeral."

"If the people could realize what cold storage is doing in the way of throwing stale meats, eggs, fruits, OYSTERS, FISH, etc., on the market, and which find their way to the table of the consumer, often after being treated to washes and preservatives of one kind and another, they would revolt and rise up against the outrageous practices. From testimony brought out in Common Pleas court in a case just closed, the people of Pittsburg eat fish and other sea foods which have been in cold storage four years. Witnesses testified that fish that have been in storage from nine to fifty-one months are often served to patrons of restaurants and hotels."

GLUTEN HEALTH FLOURS OR MURDER IN THE FIRST DEGREE

Gluten Flour: This product is prepared especially for those who suffer from diabetes. Starches and sugars *must be eliminated* from the diet of those affected with this trouble if recovery is to be expected. Of the many brands of gluten flour now on the market, *all claiming to be practically free from starch*, many contain not

less than one-third starch, while some of the "pure" brands contain *as high as 60 to 82 per cent of the starch products*. And for these starch foods, which mean nothing less than death to the diabetic, the victimized invalid pays from 11 to 50 cents per pound because of the fraudulent claim that these "gluten" flours are free from starch. Some of the brands of "Gluten" Flour, supposedly free from Carbohydrates were found by Woods and Merrill of the Maine Experimental Station to contain the following quantities of carbohydrates: "Cooked Gluten," 76 per cent; "Wholewheat Gluten," 73 per cent; "Plain Gluten Flour," 34 per cent; "Breakfast Cereal Gluten," 44 per cent; "Gluten," 82 per cent; and "Pure Vegetable Gluten," 56 per cent.

"Glutine" contains 82 per cent of carbohydrates, while ordinary whole wheat does not contain over 70 per cent.

HEALTH BREAKFAST FOODS

The various BREAKFAST FOODS prepared by health food companies are not to any great extent adulterated with foreign substances, *but the*

public IS DEFRAUDED into believing that the food value is many times greater than it really is.

INFANTS' FOODS. There are two classes of infants' foods. Those made from cereals as a basis and those from cow's milk as a basis. Neither of these classes are ideal infant's foods. They do not correspond at all closely to the composition of the mother's milk. Most manufacturers do not consider the number of child-deaths which probably result from an over use of infants' foods composed chiefly of *cereal combinations high in starch*.

HONEY

Strained honeys are largely adulterated with sugar and commercial glucose. The particles of supposed honey comb found in strained honey are often artificial. Much honey is made of glucose and rose water.

A large amount of the *comb* honey on the market is not obtained from the natural sweets of the flower. Bee raisers set dishes of glucose near the hives. Upon this the bee feeds until even the live bee is adulterated.

When a bee raiser has been honest and furnished the wholesaler with pure "flower-sweet" honey, the wholesaler has the wax caps opened,

drains out the pure honey to be used in flavoring great masses of glucose, soaks the comb in glucose and when filled reseals the punctured comb with beeswax.

"A sample of alleged honey was purchased by one of the inspectors of the Food and Drug Department of the Massachusetts State Board of Health, put up in a glass jar with a large mass of honeycomb and a dead bee. No genuine honey was found, the mixture consisting of commercial glucose and cane sugar. Even the comb was artificial." Leach.

JELLIES AND JAMS

Jellies and jams are largely adulterated. Many times preparations have been examined which contain not a particle of the true fruit ingredient, except of course water. I have tested "pure" strawberry jams which contained no particle of strawberry or strawberry juice.

Apple pulp, glucose, fuchsin, sulphuric acid, sodium benzoate, and artificial flavors compose the jams. Grass seed is added to imitate the achenes of the strawberry. At least 92 per cent of the preserved fruits and jams on the market are considerably adulterated. Fruit juices are

usually preserved with salicylic acid while fruit syrups contain gum arabic and soapbark.

“Many jams are sold in large packages. Among them strawberry jam, which is composed of starch paste, glucose, artificial strawberry flavor, saccharin, coal tar dye, preserved with salicylic acid, and in order to complete the deception they add hayseed. Blackberry, raspberry and grape jams are made in the same way excepting as the color is changed. Apple butter is composed of starch, glucose, saccharin, coal tar dye, preserved with salicylic acid, and an artificial flavor. When these preparations are made from the fruit, the fruit is refuse or spoiled. It is treated with coal tar anti-ferments, colored with coal tar dyes and flavored by chemicals. A price quotation sent me recently offers apple butter for nineteen cents a pail, currant jelly five cents a pound jar, and other preserves for a like price and like quantities. Table syrups are made of glucose, coal tar dye and flavor to suit the name. Is it to be wondered that children fed on such poisonous stuff are pale and subject to disease?”—Dr. McKitterick.

LARD

After the jowl is removed, the entire head of the hog is used in making lard. The fat is fried out from the intestines also. In fact, lard is made out of everything inside the hog except the lungs and heart. "Compound" lard very often contains no particle of lard at all but consists entirely of cottonseed oil and beef stearins. The usual adulterants of lard are cottonseed oil, beef stearin and sesame corn, peanut, and arachis oils, while water is used to give weight.

MAPLE SYRUP

Maple syrup is often adulterated with drip syrup, glucose, molasses, etc. Some brands are made by combining glucose syrup and extract of the bark of the hickory tree. Lead and copper, due to utensils used in manufacture, have been found in maple syrups. So called "Pure Maple Syrup" is usually made about as follows: Equal quantities of light brown cane sugar and water, with an addition of caramel or burnt sugar to give good color, is melted and boiled. Then the mixture is flavored with a decoction made from corn cobs, hickory bark and maple chips. Such a product costs about 14 cents per gallon and sells for \$1.25.

Of twenty-five brands tested by the Indiana State chemists, only one was found pure. *One*

which contained adulterants was labeled thus: "The syrup contained in this package is pure evaporated sap fresh from the maple tree. It is evaporated in the forests and is handled with great care. It is the first run, hence the bright color and exquisite flavor. It is absolutely pure and is put up for those who desire the very best."

Ninety-five per cent of all brands of maple syrup are adulterated. They are made from maple chips boiled in glucose or glucose and corn cobs or glucose, coal tar flavor and coal tar dye.

MEATS: ADULTERATED

Many of the canned and deviled meats are not of the substances proclaimed by the labels. Cheap pork and beef are often prepared with chemical flavors and sold as various types of fowl and wild game. Horse flesh is seldom if ever used at present by manufacturers. This flesh is of a coarser texture and of a darker and brighter color than beef. It has a characteristic odor and the muscle fibres are shorter than those of the beef. Hams are often made of old meats, thigh bones inserted, the whole pressed together and solidified by means of mucilagenous substances.

MEATS: REFRIGERATED AND POISONED

"It is known to all physicians and physiologists that there are generated in the body of any animal poisons of the highest degree of toxicity. The intestines and other digestive organs contain at all times materials which have undergone putrefactive changes. If this material be permitted to remain in the body after death the poisons generated may infiltrate the entire flesh, making it dangerous to the person who eats it. The body, in which the viscera are permitted to remain, undergoes decomposition much more rapidly than when such viscera have been removed. Decomposition is further hastened by leaving the blood in the animal.

"It has become the custom of wholesale poulterers and packers to purchase poultry during the early summer, when the prices are lowest, and to keep it in cold storage until winter or until the prices are highest. Such fowls are killed without bleeding, often plucked before death and placed in cold storage without removing the entrails and other viscera. Frequently they are not offered for sale until several months after killing.

"The process of decomposition and putrefaction begins at once. Cold storage and freezing

may limit the rotting process, but do not stop it. When poultry or animals are taken from cold storage and thawed out for exhibition and sale the decomposition continues with renewed energy, impregnating the flesh with poisons. Flesh in which the blood has been permitted to remain is particularly susceptible to such decomposition, and this susceptibility is increased by the long period of freezing and thawing.

"Even with poultry that is 'freshly killed' there is frequently a period of several days between the time of slaughtering and sale. Not only is it dangerous, but it is repugnant to our sense of decency that the flesh we are to eat shall lie for several days in close contact with putrifying animal matter."

Extract of letter of Dr. James A. Egan, Secretary, Illinois State Board of Health to Mayors of the cities of the State of Illinois.

MEAT PRESERVATION

Bacon and ham are cured by preserving in cane sugar, boric acid, borax and calcium bisulphite. Salt petre is used to preserve the red color. Oftentimes as much as a 1 per cent solution of sulphurous acid may be added and yet not be perceivable either by taste or smell.

Salicylic acid is very commonly used. Leach has found it in mince-meats.

MEAT COLORING

Red ochre, coal tar dyes and cochineal are very commonly used to heighten the color of the meat products. Sometimes as much as 4 oz. of nitre have been found to each 100 lbs. of meat. This is used to preserve the natural color.

DR. WILEY ON PRESERVED MEATS

The following quotations in regard to the composition of prepared, mixed and canned meat products are taken from a report of Dr. Harvey W. Wiley and Dr. W. B. Bigelow of the National Bureau of Chemistry of the U. S. Department of Agriculture.

HORSE MEAT

"In this country horse meat is practically unknown as an article of human food. Over 2,000 horses are killed annually for this purpose, but it is believed that the meat is all cured and exported. The only well-authenticated case of the sale of horse meat as beef which has come to the writer's notice of recent years occurred in Wisconsin where a man who combined the vocations of veterinary surgeon and butcher was convicted of purchasing old and crippled horses at a distance from his home and selling a portion of the meat in the form of sausage.

CANNED FOWL

"The numerous preparations supposed to be made entirely of fowl, either wild or domesticated afford ample opportunities for the use of low priced meats, such as beef and pork, in place of those of much greater value which are represented to be present. This is especially true of macerated meats, such as potted and deviled goods. In such articles as roast chicken, or roast turkey where the meat is left in pieces of sufficient size to permit of a microscopic examination, these coarser meats are not used, as their presence could be readily detected. At the same time it is easily possible to replace turkey with chicken, or pheasant, woodcock, grouse, and meats of similar value with that of the common domestic fowl, which brings a much lower price under its true name. This species of fraud is probably not as far reaching or as objectionable as is the employment of the cheaper meats under the label of those of a widely different type.

POTTED CHICKEN AND TURKEY

"It is apparently understood among manufacturers that the labels of potted goods are not intended to indicate the variety of meat employed. This being true and in the absence of any estab-

lished standards on the subject it is difficult to criticise goods of this nature. A certain consistency is desired by each manufacturer, and to obtain this it is often necessary to add some fat or fat meat. It may thus be found more convenient to add fat pork than fat beef. It is held by many manufacturers that the flesh of a single species does not give the flavor desired in potted and deviled goods. The fact that the smoked beef and pork is added to potted and deviled fowl instead of the cheaper fresh meat confirms this claim. At the same time there are some manufacturers who do not appear to find such mixtures advantageous. In this field, as in many others, authoritative standards are greatly needed.

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“It seems unjust that a firm whose potted chicken consists almost entirely of beef and pork should be permitted to compete with one in whose goods it is apparent only enough foreign fat meat has been employed to give the desired consistency.

CANNED SAUSAGE

“Twenty-five samples of miscellaneous sausage were examined, of which only 10 were free from preservatives. Both boric acid and sulphite are

used commonly for the preservation of sausage. Saltpeter was found wherever the test was made, and it would appear that the samples examined were all similar in their preparation to those sold in bulk.

* * * * *

"In some of the samples examined the amount of starch present was found to be excessive.

PATES AND PUREES

"It would appear from the results of the examination that the fat contained in samples examined was chiefly derived from beef or pork. It is something of a surprise to find that even in a highpriced imported pate de foie gras the traditional diseased goose livers have been replaced by beef and pork. There can certainly be no objection to such a substitution on hygienic grounds, but as a matter of interest and fair dealing it is most reprehensible.

"At the same time, it is not the writer's intention to criticise goods of this class, other than pate de foie gras, on account of the fact that pork and beef fat were used in their preparation. There are manufacturers who do not use fat pork as a basis for pates, but the practice is almost universal. The ordinary pates are admitted by

their manufacturers to consist largely of pork, and in the absence of official standards to guide us it would seem wise to place them in the same class as sausages, where all that is expected is that only sound, wholesome meat shall be employed.

COMMENDATION

"The preserved-meat industry has grown to vast proportions, and these products of the United States are found in every market. It is gratifying to know that, as a result of our investigations, we have found so little to criticise and so much to commend in these necessary products."

MILK

Milk is adulterated to increase the quantity, to thicken the milk and cream, to color the fluid, to increase the weight, to sweeten the watered milk, and to prevent it fermenting or souring. Water is used to increase the quantity. Many milk powders are on the market for the purpose of thickening the milk. None of these, so far as analysed, contain the full proportion of each and all elements of the milk. One substance is made up largely of brain matter. Another is "Agar"

made from the jelly of the sea algae. A substance made up largely of sugar and calcium oxide is sold for this purpose. "Grossen" is used in cream thickening. Corn starch and talcs are also used. Annato, anilin orange, caramel, turmeric, saffron, carotin and coal tar colors are used for coloring. Cane sugar is used to sweeten watered milk. Salicylic acid, benzoic acid, carbonate and bicarbonate of soda, boric acid and formaldehyde are used as preservatives. "Ice-line," "Preservaline" and "Freezine" are liquid preparations on the market containing from 2 to 7 per cent of formaldehyde.

The infant suffers greatly from adulterated milk. Borax and formaldehyde are poisonous substitutes for cold and cleanliness.

N. E. Jaffa of the University of California found 55 per cent of all cows of the 86 dairies along the C. N. & N. S. R. R. afflicted with one ailment or another.

OLIVE OIL

Olive oil is very much adulterated. Pure olive oil contains about 30 per cent of solid fat. The amount of free fatty acids is about $1\frac{1}{2}$ per cent

in the pure olive oil, while in the adulterated olive oil this harmful element often forms 25 per cent of the oil fluid.

The adulterants used are cottonseed oil, arachis oil, sesame, sunflower, corn, rape, poppy-seed and peanut oil, lard, curcas oil, fish oil, castor oil and petroleum. Some of the foreign brands contain as high as 15 to 25 per cent of cheap castor oils. Of the "pure imported" olive oils, I think there is not one that contains more than 10 per cent *olive* oil and most of them do not even contain 4 per cent.

The official reports issued from the Department of Agriculture at Washington show that in testing sixty-five different brands of imported olive oil NOT ONE was free from adulteration, though purporting to be pure Olive Oil. ONE contained no olive oil.

Of the six hundred varieties exhibited at the Paris Exhibition, only a few contained 10 per cent of olive oil; most brands contained from 1 to 4 per cent, and some varieties not a particle of olive oil.

GOVERNMENT REPORT ON PURE
OLIVE OIL

By Newton B. Pierce, Assistant, Division of
Vegetable Physiology and Pathology; U. S.
Department of Agriculture.

“The one great need today is legislative action which will prevent the sale within the United States of other oils under the name of olive oil. The production of pure olive oil in Europe is scarcely sufficient to supply European demand. If the producers could not, as at present, sell us peanut oil and cottonseed oil under the name of olive oil and charge for it olive oil prices, American dealers would have to supply the demands of consumers with the pure American product; provided, of course, the law had universal application. If cottonseed oil were desired by the people, it could then be had at its true value, being sold under its own name by the American firms producing it, whereas now it is shipped to Europe by these firms, reshipped to this country as the product of the olive and foisted upon the American public as ‘pure olive oil.’ Many who pay for olive oil and suppose they are using it have perhaps never tasted the pure article. This statement, which may at first seem exaggerated, is undoubtedly true in very

many cases, and should stimulate the consumer to procure the California product that he may be assured of its purity, the California laws being very strict in the matter of oil adulteration. To secure the best the brand of some well-known grower should be selected." Year Book of the United States Department of Agriculture, 1896, page 373, beginning with the fourteenth line.

"In consular reports it is stated that in Europe cottonseed oil is largely mixed with the olives as they are being crushed; 6,000,000 gallons of this unwholesome product being yearly shipped from the United States for the sole purpose of adulteration. It is also shown, in official reports issued from the Department of Agriculture at Washington that in testing 66 different brands of imported oil not one was found free from adulterants, though purporting to be pure olive oil."

SAUSAGES

Most sausages are "filled" with the waste rice, bread, biscuit, crackers, potato peelings, etc., of our restaurants. Corn starch and potato flour are also used. Pork is usually the meat ingredient.

SPICES, CONDIMENTS, ETC.

Spices as a whole are very greatly adulterated. Even very finely ground wood is used.

PEPPER. The following are some of the adulterants which may be looked for in pepper, according to Leffman and Beam, "Food Analysis", p. 295:

"Pepper husks, long pepper, wheat, buckwheat, cayenne pepper, mustard, husks, ground olive stones (poivrette or pepperette) almond and cocoanut shells (often roasted or charred), Egyptian corn, spent ginger, and coriander seed. Of mineral additions, sand, clay, brick dust, chalk, barium sulphate, and lead chromate are known to have been used."

CAYENNE is frequently adulterated with rice flour, brick dust, iron oxide, red lead and salt. Cereal grains, ground pilot bread, nut shells, gypsum, ground redwood and olive stones, mustard hulls and red ochre are also used.

GINGER is mixed with turmeric, corn, wheat and sawdust.

NUTMEG is adulterated with wheat and ground nutshells. Some of the brands which have been tested have been found to contain one-fourth ground cocoanut shells. Artificial nutmegs are

made of starchy or mineral matter and flavored with nutmeg oil.

CINNAMON is adulterated with pea hulls, nutshells, cereal and leguminous starches, pepper, olive stones, ginger, mustard, ground mahogany wood, oil-cakes, sawdust, and ground bark of the elm tree.

ALLSPICE is mixed with clove stems, cayenne, ground olive stones, ginger, cocoanut shells, pea hulls, etc.

CLOVES are adulterated with clove stems, mother cloves, rice, "exhausted" ginger, ground fruit stones, sawdust and sand.

MUSTARD is cheap, but poor wheat flour and rice flour, weed seed and corn meal are cheaper, hence these adulterants are used. Turmeric may be used to color pale adulterants. Chalk, lead, chromate, white clay, calcium sulphate, are also employed.

SOUR PICKLES are preserved in *mineral* acid vinegars, colored green with copperas, or some other dye, made brittle with alum, and kept with salicylic acid. Sweet pickles are preserved with salicylic acid and sweetened with saccharin.

KETCHUPS, chili sauces and like preparations are compounded of the worst refuse of the can-

ning factories, restaurants, etc. "Good" (?) ketchup stocks about ready to be bottled can be bought for \$2.00 to \$3.00 per barrel.

Nearly all ketchups are preserved with benzoate of soda or salicylic acid and colored with coal tar dyes.

PREPARED MUSTARDS and mustards for pickles, chowders, etc., are nearly always adulterated and colored.

SUGARS

Sugars are not greatly adulterated at present. Loaf sugars oftentimes contain ultramarine blue, while chlorid of tin is sometimes used to give bulk sugars a bright fast yellow. Powdered sugars have often been mixed with starch, white clays, talcum and chalk.

SYRUPS AND MOLASSES

Glucose is used to a great extent as an adulterant. In the United States it is made largely from corn. The starch is boiled with sulphuric acid, then neutralized with marble dust and filtered through bone black. The sulphuric acid oftentimes leaves a minute quantity of arsenic in the product.

Dark molasses are bleached. Sulphurous acid, sulphites, ozone, hydrogen dioxide, zinc dust,

sodium sulphite, and oxalic acid, one or more, being used in the process. Tin is often used to enrich a weak color.

TEA

TEA is adulterated with leaves of many other plants, willow, elm, poplar, birch and rose; it is "faced" with Prussian blue, plumbago, indigo, turmeric, or graphite. Pulverized sand, brick-dust and metallic iron are added to give weight.

Rank and undeveloped leaves are soaked, softened, bleached, painted, and dried to resemble the purest and best teas.

One of the Japanese preparations for "facing" tea contains 47 per cent soapstone, 48 per cent white clay and 5 per cent Prussian blue. Another brand is composed of 75 per cent soapstone and 25 per cent indigo.

WHEAT

Wheat has been called the staff of life, but as prepared and eaten we might more aptly term it the angel of death.

Wheat flour is often adulterated. Corn meal, potato flour, copper sulphate, ground ergot, seeds of weeds and talcum forming the list of

most commonly used adulterants. The ergot is especially dangerous to health because of the alkaloids which it contains. Alum and copper sulphate are added to improve the appearance of the flour.

DRUGS AND CHEMICALS USED IN ADULTERATING FOODS AND THEIR PHYSIOLOGICAL ACTION

In presenting a statement of the effects of the drugs and chemicals used in the adulteration of food products upon the tissues of the various organs of the body and the resultant harm accomplished in hindering or over-functioning the digestive or eliminative processes of the organism, the author has striven to present only those conclusions which are held by the best authorities on *materia medica*.

"*Materia Medica, Pharmacy, and Therapeutics*", by Samuel O. L. Potter, A. M., M. D., M. R. C. P., Lond., has been used as *the* authority on this subject.

CONTINUED USE OF DRUGS

The physiological action of the drug adulterants described in the following pages is usually that which results from a small or medium dose. In instances where the effect of a large dose is given the fact is so stated.

Please bear in mind, however, that the effects given in following pages are such as might re-

sult from a dose or two as given by a physician, with care as to the condition of the stomach and as to other drugs taken at the same time, if others are prescribed.

When we take drugs as adulterants of foods we have not the knowledge of a physician to guide us. We do not know the chemical condition of the contents of the stomach; we do not know how many other drugs we are taking in other foods at the same meal; we do not know whether these drugs will destroy each other or whether they will unite in such a manner as to form dangerous poisons.

It would be no more dangerous to ones health to enter a pharmacy, take thirty or forty drugs, stir them into a barrel of water without knowing anything of their resultant combinations, and drink this solution at the rate of a glassful a day, day in and day out for years.

When a physician prescribes a drug it is only for a dose or two, or perhaps for a week; but in foods we continue our hit-and-miss dosage throughout life.

ALUM

Alum stimulates the contractile action of muscle fibres. It hardens the skin lining of the mouth, stomach and intestines.

At first it increases the action of the salivary glands, but soon after decreases the flow of saliva. Alum hardens pepsin, stops digestion, hinders the peristalsis of the intestines and produces constipation..

Alum has been used in adulterating white wheat flour.

ARSENIC

The most prominent symptoms of arsenic poisoning are, at first increased appetite, next colicky pains, dysenteric stools, irritation of the eyes, a short dry cough, and a white and silvery tongue, all accompanied by great bodily prostration.

The long-continued use of arsenic may induce severe darting pains in the limbs and paralysis of the muscles of the extremities.

Arsenic has been found in the rinds of cheeses, and is often left in glucose and molasses from the use of sulphuric acid for bleaching purposes.

BENZOIC ACID

Taken internally it causes slight epigastric heat, increases the pulse rate, and stimulates the action of the skin and kidneys, the salivary glands, and the bronchial mucous membrane. Benzoin is irritant to the fauces and the powder excites sneezing and coughing when inhaled.

Benzoic acid and its salts are generally considered to be efficient agents for rendering an alkaline urine acid.

Benzoic acid is used extensively to preserve canned goods and milk.

BORAX AND BORIC ACID

Boric acid is feebly germicidal, but in dilute solution it is antiseptic and stimulant, and has a soothing effect on mucous membranes. In concentrated form it is decidedly irritant. Its physiological action is feeble, but poisonous doses have caused lower temperature, depressed spirits and a feeble pulse. Borax and boric acid are used very extensively in the preservation of meat, fish, butter and milk.

Statistics show that England imported during the fiscal year of 1903-4, 366,526,562 pounds of hams and bacon and 407,795,000 pounds of butter. The hams and bacon were all preserved

with borax. The butter was all preserved with boric acid. It required 8,788,970 pounds of borax and boric acid to preserve the meat and butter, so that the English nation practically consume 8,788,970 pounds of poisonous preservatives annually.

The very rapid and evident deterioration of the health of the English working people during the last decade may thus be accounted for.

The following quotations on the physiological effects of a continued use of borax or boric acid are taken from the conservative and elaborate report of Dr. Harvey H. Wiley, Head of National Bureau of Chemistry:

EFFECT OF BORIC ACID AND BORAX UPON GENERAL HEALTH

“The medical symptoms of the cases, in long-continued exhibitions of small doses or in large doses extending over a shorter period, show in many instances a manifest tendency to diminish the appetite and to produce a feeling of fullness and uneasiness in the stomach, which in some cases results in nausea, with a very general tendency to produce a sense of fullness in the head

which is often manifested as a dull and persistent headache."

* * * * *

"The administration of 3 grains per day produce the same symptoms in many cases, although it appeared that a majority of the men under observation were able to take 3 grains a day for somewhat protracted periods and still perform their duties. They commonly felt injurious effects from the dose, however, and it is certain that the normal man could not long continue to receive 3 grains per day."

* * * * *

"The administration of borax and boric acid, to the extent of one-half grain per day yielded results markedly different from those obtained with larger quantities of preservatives. This experiment, Series V, conducted as it was for a period of fifty days, was a rather severe test, and it appeared that in some instances a somewhat unfavorable result attended it. On the whole, the results show that one-half grain per day is too much for the normal man to receive regularly."

INFLUENCE OF THE PRESERVATIVE UPON THE WEIGHT OF THE BODY

"In every series there was a marked tendency on the part of boric acid and borax to diminish slightly the weight of the body, although this tendency was in some instances checked during the after periods and a portion of the loss of weight was regained. In general, however, there was a tendency to continue the loss of weight during the after periods."

EFFECT OF BORIC ACID AND BORAX ON THE URINE

"The data show a marked tendency on the part of boric acid to increase the acidity of the urine. In no case during the administration of boric acid was an alkaline reaction observed."

* * * * *

"In those few cases where there was normally a mere trace of albumen in the urine it is shown by the data that the general tendency of the preservative used is to increase the trace of albumen in the urine, and this increase is manifested also during the after periods."

"When, however, all the data are collected into one expression it is found that the influence of these bodies added to the food is distinctly

marked on the metabolism of phosphorus and phosphoric acid. There is a distinct tendency shown by them to increase the quantity of phosphoric acid excreted during the period of the administration of the preservative."

CARBONATE OF SODA

Sodium carbonate is quite an irritant to the stomach. It is used in preserving milk.

CASTOR OIL

Internally administered it is non-irritant until it reaches the duodenum, where it is decomposed by the pancreatic juice setting free the ricinoleic acid, stimulating the intestinal glands and muscular coat, but not the liver.

"There is considerable evidence in support of the charge that it induces hemorrhoids by congesting the rectal vessels."

SAM'L O. L. POTTER.

Used as a very common adulterant of olive oil. Sometimes as much as 25 per cent is used and labeled pure olive oil, or if not labeled exactly as pure olive oil the label is so made and so worded as to deceive the indiscriminate buyer.

For example, there is a brand of salad oil on the market which is not good. On the label in large letters is printed "Olive Oil", and above

these large letters are printed in small type the words "As Good as Any". These words are printed in a fancy scroll and are not seen by the average buyer.

CHALK AND LIME

Even in weak solutions lime is an irritant. The action of lime is especially caustic to the mucous membranes and produces very dangerous inflammation and even ulceration. Chalk has not the irritant qualities of the lime. Lime is used especially to adulterate milk.

COPPER

The salts of copper are irritant to the stomach and intestines. They produce constricted fauces, depressed heart-action, rapid respiration and fever. The liver becomes atrophied from irritation of its connective tissue and fatty degeneration of the hepatic cells. The lungs are congested. Even pneumonic consolidation may be set up, the metal seeming to have an affinity for the pulmonary parenchyma. These effects are often produced by eating acid fruits cooked in copper vessels during the canning process.

Copper Sulphate is a simple, irritant emetic, producing prompt and continued vomiting, with but little nausea or depression. In small but

continued doses it will cause constipation. Copper sulphate is mixed with white flour, is found in some maple syrups is used to color peas, corn asparagus, etc., and is also used in the preparation of chocolate. Copper salts are found in some breads and some canned goods.

CREOSOTE

Creosote contracts muscular fibres and puckers the mucous membranes. It burns and deadens the tissues and has somewhat of a narcotic effect. In large doses it is a powerful poison.

In the preparation of meats creosote is used to give the appearance of being preserved by smoking.

ERGOT

Ergot is a fungus. Ergot quiets the heart action, yet acts as a stimulant to most involuntary muscles. It greatly increases the blood pressure. It increases intestinal muscular action, whitens the intestinal vessels and decreases the secretion of saliva, urine and sweat, thus retaining the waste of the last two within the body.

Ergot is ground up with the wheat flours.

FORMALDEHYDE

This substance is secured by oxidizing wood alcohol. Formaldehyde is a powerful antiseptic

and disinfectant. Bichloride of mercury is the most powerful poison of the mercurial salts. It is especially poisonous to all forms of germ life,—harmful or beneficial. Formaldehyde ranks next below bichloride of mercury as a poison for killing germs. It is very irritant to the mucous membrane. A very small amount in the air causes violent irritation of the linings of the trachea, bronchial tubes and lungs. It is much more poisonous taken into the stomach than injected into the blood through the skin. It is very widely used for the preservation of milk and oftentimes in butter.

FUSEL OIL

Fusel oil is a fermented alcohol obtained from the potato, also occurring in the crude spirit produced by the fermentation of saccharine solutions with yeast, and separated by excessive distillation passing over after the ethyl alcohol. The physiological effects of the various forms of alcohol are too well known to go into detail in this limited space.

Fusel oil or amyl alcohol is used in candies, bon-bons, etc.

GLYCERIN

Glycerin takes water from the tissues with which it comes in contact, and as sold on the market is irritating to the skin and especially the mucous membranes. All cheap glycerins, such as those used in food products, contain acrolein, which is very poisonous. In quantities it acts as a laxative and is thought to dissolve the red blood-cells.

Glycerin (cheap kinds) is used in remaking old and mouldy sausages.

GUM ARABIC

Gum arabic is a sticky, mucilaginous substance. It has a negative activity. It acts as a soothing covering to irritated tissues. It is, however, very difficult of digestion. It is employed by manufacturers to thicken fruit syrups.

GYPSUM

Gypsum is heat-dried sulphate of lime. It is decidedly irritant to the intestinal linings. As small an amount as six grains to the gallon is unwholesome and very liable to produce constipation or diarrhea. It is used as an adulterant of cayenne pepper, of coffee, of many spices and of a few bakery breads in this country. It is

very widely used in some foreign countries as a bread adulterant, but, thanks to the Bakers' Association, seldom used to any great extent in the United States.

INDIGO

Indigo in small doses is a laxative, while in larger doses it acts as a violent cathartic and produces severe inflammation of the linings of the stomach and intestines. Indigo is used to face teas, and some of the facing preparations contain as high as 25 per cent of indigo.

IRON

Iron is directly unfavorable to digestion, either in large or small doses. Its salts are irritant to the mucous membranes, and some of them are active poisons. Iron salts to a large extent coagulate or harden albumins.

Iron has been found in tea, in cayenne pepper and in chocolate.

LEAD

All lead salts are more or less poisonous. Lead poisoning usually produces loss of appetite, emaciation, pallor, constipation, a weakening of the muscular activity, slowing of the heart action and sometimes violent colic. Rheumatism and

neuralgic troubles may arise. Lead salts lessen the secretion of the digestive fluids, produce contraction of the tissues and then destroy the power of contraction. The salts finally destroy the red blood-cells.

Salts of lead are found in the rinds of cheeses, in mustard, in pepper, both black and cayenne, in candies, and is common in most products preserved in tin cans.

OXALIC ACID

Oxalic acid derives its importance from its frequent use as a poison. It is largely used in the arts, for bleaching and dyeing, also in households for cleaning brass and removing ink and iron stains. It is a rapid and powerful poison, causing burning pain in the throat and abdomen, vomiting of acid, greenish or bloody mucous, a small and irregular pulse, collapse and stupor.

Oxalic acid is used in the preparations of most molasses.

PARAFFIN

Paraffin is a pure white, solid, waxy substance made from petrolatum. It is thoroughly indigestible and produces many intestinal disorders. It is a frequent adulterant of cocoa butter, all forms of cake chocolate, many kinds of bakery cakes and candies and bon-bons.

POTASSIUM

The potassium salts act directly upon the chemical contents of the stomach. If continued they neutralize the acids and produce disorders of digestion. They stimulate the tearing down processes of the body and increase the amount of waste which must be eliminated from the body. Potassium carbonate is used in the making of some of the bakery gingerbread.

PTOMAINES

Ptomaines produce great inflammation of tissues of the stomach and great prostration. They are found principally in fish, sausages and canned meats.

SALICYLIC ACID

In small doses it stimulates the stomach, heart and respiration, but moderate quantities derange the stomach, causing nausea and vomiting, while large doses depress the heart's action and the respiration after a primary excitation of both, lower the arterial tension, relax the vessels, produce free perspiration and reduce the temperature in fever. It causes a sense of fullness in the head, roaring and buzzing in the ears, disturbances of sight and hearing, excessive sweat-

ing, dilated pupils, and delirium. Large doses continued for some time may produce bed sores from depression of the circulation.

Salicylic acid is used very extensively in the preservation of milk, of all kinds of meats, in clam bouillon and clam juice, in butter, in fruit juices and many canned products.

SALT PETRE

Salt petre is potassium nitrate, hence its general effects are given under the heading "Potassium". The nitrate, however, greatly increases the flow of the urine. Its continued use destroys the red blood-cells and paralyzes the motor nerve centers of the heart.

It is used in pickling and preserving meats and fish. The red color of meats is retained and brightened by its use. As much as 4 oz. to 100 lbs. of meat have been used.

In a later chapter one of the quotations from "The Jungle" indicates its effect upon living flesh.

SULPHURIC ACID

The mineral acids, nitric and sulphuric acids, resemble each other closely in their general action. These strong acids burn and abstract the

water from the tissues, combine with their albumin, and destroy the protoplasm.

Sulphuric Acid has a strong affinity for water, completely decomposing the tissue, and is therefore the most powerful tissue destroyer. *Nitric Acid* does not readily redissolve the albumin precipitated by it, which thus forms a barrier against the deep action of the acid. *Sulphuric Acid* chars the tissues black, while *Nitric* tans them yellow.

Sulphuric acid is used as an ingredient in most of the artificial fruit juices; it is also used to bleach old peas, corn, jellies and jams in preparation for a new coloring and to whiten glucose and dark molasses.

SULPHUROUS ACID

The sulphurous acid gas is injurious to many fabrics, is irritant to the respiratory mucous membrane, and inhaled may cause dangerous inflammation of the glottis. *Sulphurous Acid* has a powerful affinity for oxygen, is strongly disinfectant and deodorant, and very destructive to all plant and animal life.

Sulphurous acid is used in preserving meats, butter and canned products. Sometimes as much as 1 per cent solution is used in this process.

TALCUM

Talc is a white or white-grayish powder which cannot be dissolved by water. It is very liable to hinder digestion and produce constipation. It is used as a mixture to increase the weight of white flour, candies, chocolates, and to thicken cream.

TURPENTINE OIL

In small doses, oil of turpentine first increases the activity of the vaso-motor nerve centers, but soon produces a paralysis of these same centers. It decreases the activity of the brain and retards the breathing until it sometimes becomes spasmodic.

It is used as an adulterant of lemon oil or as a substitute for lemon oil in adulterated lemon extracts.

VALERIAN

Valerian is antispasmodic and a gentle stimulant to the nervous and circulatory systems. It excites the sexual appetite. Continued use induces a condition of melancholia. In large doses the oil acts as a paralyzant to the brain and spinal cord.

The acid is used as a prominent ingredient of artificial fruit flavors.

ZINC SALTS

Zinc metal dissolves very readily when in contact with even the weakest acids. The zinc salts produce abnormal contraction of muscle fibres and afterwards harden them by coagulating the albumin. The sulphite, which is used in cheeses as an ingredient of "cheese spice", burns the tissues and greatly irritates them. Continued use of foods containing zinc produces conditions similar to those produced by lead poisoning.

Zinc dust is used in manufacturing molasses; the sulphite is employed to prevent cheese from cracking, and the various salts are often found in goods preserved in tin cans.

QUOTATIONS FROM "THE JUNGLE"

The author is creditably informed that the reliable and conservative publishers of "The Jungle" refused to accept the manuscript of Mr. Sinclair for publication unless the statements regarding conditions in Chicago Packingtown were verified. He is also informed that they employed a noted eastern attorney to make a trip to Chicago and thoroughly investigate conditions and that this attorney found Mr. Sinclair's statements to be *practically true*.

The author, however, feels that real truth lies between the statements of Dr. Wiley and Mr. Sinclair. It is very likely that Dr. Wiley did not see many things he could have seen, had he not gone to Packingtown as an expected investigator. It is also probable that Mr. Sinclair's statements although practically true, may be colored by the dramatic instinct of the writer.

The author's thanks and appreciation are due both the publishers of "The Jungle" and the National Bureau of Chemistry.

HOW THE MEAT INSPECTOR SOMETIMES INSPECTS

"Before the carcass was admitted here, however it had to pass a government inspector, who sat in the doorway and felt of the glands in the neck for the tuberculosis. If you were a sociable person, he was quite willing to enter into conversation with you, and to explain to you the deadly nature of the ptomaines which are found in tubercular pork; and while he was talking with you you could hardly be so ungrateful as to notice that a dozen carcasses were passing him untouched.

EFFECT OF SALT PETRE ON FLESH

"But he asked the men about it, and learned that it was a regular thing—it was the saltpeter. Every one felt it, sooner or later, and then it was all up with him, at least for that sort of work. The sores would never heal—in the end his toes would drop off, if he did not quit.

MAKING "PURE" LARD

"There was said to be two thousand dollars a week hush-money from the tubercular steers alone, and as much again from the hogs which had died of cholera on the trains, and which you might see any day being loaded into box-cars

and hauled away to a place called Globe, in Indiana, where they made a fancy grade of lard.

* * * * *

"As for the other men, who worked in tank-rooms full of steam, and in some of which there were open vats near the level of the floor, their peculiar trouble was that they fell into the vats; and when they were fished out, there was never enough of them left to be worth exhibiting,—sometimes they would be overlooked for days, till all but the bones of them had gone out to the world as Durham's Pure Leaf Lard!

* * * * *

"It was said by the boss at Durham's that he had gotten his week's money and left there.

* * * * *

"When for instance a man had fallen into one of the rendering tanks and had been made into pure leaf lard and peerless fertilizer, there was no use letting the fact out and making his family unhappy.

"DOWNERS"

"There were some with broken legs, and some with gored sides; there were some that had died, from what cause no one could say; and they were

all to be disposed of, here in darkness and silence. "Downers" the men called them; and the packing-house had a special elevator upon which they were raised to the killing-beds, where the gang proceeded to handle them, with an air of nonchalance which said plainer than any words that it was a matter of everyday routine. It took a couple of hours to get them out of the way, and in the end Jurgis saw them go into the chilling-rooms with the rest of the meat, being carefully scattered here and there so that they could not be identified.

TUBERCULAR CATTLE SOLD IN CHICAGO

"The carcasses of steers which had been condemned as tubercular by the government inspectors, and which therefore contain ptomaines, which are deadly poisons, were left upon an open platform and carried away to be sold in the city.

LAMB AND MUTTON FROM GOATS' FLESH

"Any day, however, one might see sharp-horned and shaggy-haired creatures running with the sheep, and yet what a job you would have to get the public to believe that a good part of what it buys for lamb and mutton is really goats' flesh.

SLUNK CALVES

"Any man who knows anything about butchering knows that the flesh of a cow that is about to calve or has just calved, is not fit for food. A good many of these come every day to the packing-houses—and, of course, if they had chosen, it would have been an easy matter for the packers to keep them until they were fit for food. But for the saving of time and fodder, it was the law that cows of that sort came along with the others, and whoever noticed it would tell the boss, and the boss would start up a conversation with the government inspector, and the two would stroll away.(So in a trice the carcass of the cow would be cleaned out, and the entrails would have vanished; it was Jurgis' task to slide them into the trap, calves and all, and on the floor below they took out these "slunk" calves and butchered them for meat and used even the skins of them.

HAMS

"In the pickling of hams they had an ingenious apparatus, by which they saved time and increased the capacity of the plant—a machine consisting of a hollow needle attached to a pump; by plunging this needle into the meat

and working with his foot, a man could fill a ham with pickle in a few seconds. And yet, in spite of this, there would be hams found spoiled, some of them with an odor so bad that a man could hardly bear to be in the same room with them. To pump into these the packers had a second and much stronger pickle which destroyed the odor—a process known to the workers as “giving them thirty per cent.” Also, after the hams had been smoked, there would be found some that had gone to the bad. Formerly these had been sold as “Number Three Grade,” but later on some ingenious person had hit upon a new device, and now they would extract the bone, about which the bad part generally lay, and insert in the hole a white-hot iron. After this invention there was no longer Number One, Two and Three Grade, there was only Number One grade. The packers were always originating such schemes—they had what they call ‘boneless hams’, which were all the odds and ends of pork stuffed into casings; and ‘California hams’, which were the shoulders, with big knuckle-joints, and nearly all the meat cut out; and fancy ‘Skinned hams’, which were made of the oldest hogs, whose skins were so heavy and coarse that no one would buy them

—that is, until they had been cooked and chopped fine and labeled 'head-cheese'!

CANNED BEEF

"He was working in the room where the men prepared the beef for canning, and the beef had lain in vats full of chemicals, and men with great forks speared it out and dumped it into trucks, to be taken to the cooking-room. When they had speared out all they could reach, they emptied the vat on the floor and then with shovels scraped up the balance and dumped it into the truck. This floor was filthy, yet they set Antanas with his mop slopping the 'pickle' into a hole that connected with a sink, where it was caught and used over again forever; and if that were not enough, there was a trap in the pipe, where all the scraps of meat and odds and ends of refuse were caught, and every few days it was the old man's task to clean these out, and shovel their contents into one of the trucks with the rest of the meat!"

* * * * *

"There were cattle which had been fed on malt and refuse of the breweries, and had become what the men called 'steerly'—which means covered with boils. It was a nasty job killing these,

for when you plunge your knife into them they would burst and splash foul-smelling stuff into your face; and when a man's sleeves were smeared with blood, and his hands steeped with it, how was he ever to wipe his face or to clear his eyes so that he could see? It was stuff such as this that made the 'embalmed beef' that killed several times as many United States soldiers as all the bullets of the Spaniards; only the army beef, besides, was not fresh canned, it was old stuff that had been lying for years in the cellar."

SAUSAGES

"There was never the least attention paid as to what was cut up for sausages; there would come all the way back from Europe old sausage that had been rejected, and that was mouldy and white; it would be dosed with borax and glycerine, and dumped into the hoppers, and made over again for home consumption. There would be meat that had tumbled on the floor, in the dirt and sawdust, where the workers had tramped and spit uncounted billions of consumption germs. There would be meat stored in great piles in rooms; and the water from leaky roofs would drip over it, and thousands of rats would race about on it. It was too dark in these stor-

age places to see well, but a man could run his hand over these piles of meat and sweep off handfuls of the dried dung of rats.

"These rats were nuisances, and the packers would put poisoned bread out for them; they would die, and then rats, bread, and meat would go into the hoppers together. This is no fairy story and no joke. The meat would be shoveled into carts, and the man who did the shoveling would not trouble to lift out a rat even when he saw one. There were things that went into the sausage in comparison with which a poisoned rat was a tidbit."

"There was no place for a man to wash his hands before he ate his dinner, and so they made a practice of washing them in the water that was to be ladled into the sausage.

There were the butt-ends of smoked meat, and the scraps of corned beef, and all the odds and ends of the waste of the plants, that would be dumped into old barrels in the cellar and left there. Under the system of rigid economy which the packers enforced, there were some jobs that it only paid to do once in a long time, and among these was the cleaning out of the waste-

barrels. * * * * Cart load after cart load of it would be taken up and dumped into the hoppers with fresh meat, and sent out to the public's breakfast. Some of it they would make into 'smoked' sausage, but as the smoking took time, and was therefore expensive, they would call upon their chemistry department and preserve it with borax and color it with gelatine to make it brown. All of their sausage came of the same bowl, but when they came to wrap it they would stamp some of it 'special', and for this they would charge two cents more a pound."

CANNED DELICACIES

"The things that went into the mixture were tripe, and fat of pork, and beef suet, and hearts of beef, and finally the waste ends of veals, when they had any. They put these up in several grades, and sold them at several prices; but the contents of the can all came out of the same hopper. And then there was 'potted game' and 'potted grouse', 'potted ham,' deviled ham—de-vyled, the men called it. 'De-vyled' ham was made out of the ends of smoked beef that were too small to be sliced by the machine; and also

tripe, dyed with chemicals so that it would not show white; and trimmings of ham and corned beef and potatoes, skins and all; and finally the hard, cartilaginous gullets of beef, after the tongues had been cut out. All this ingenious mixture was ground up and flavored with spices to make it taste like something."

YOUR DUTY

The passage of a national pure food bill and its effective enforcement as a law will not prevent the manufacture nor the sale of adulterated products under false names. National legislation will not interfere with the legislation of the states themselves, unless the action is such as might be considered detrimental to the government of the United States.

NATIONAL PURE FOOD LEGISLATION WILL MAKE IT POSSIBLE FOR EACH STATE TO PROTECT ITSELF IF IT SO DESIRES.

First: National legislation will compel manufacturers to state on the labels of each package, can, jar or article of food just what that particular package, can, jar or article contains, *before it can be shipped from one state into another*. National legislation deals with *inter-state commerce*.

Second: By this means each State can know what kinds of foods are imported. By its own

laws it can regulate the manufacture of foods produced and sold within its boundaries.

A State cannot regulate *interstate* commerce. It can only regulate the commerce within its own boundaries. Because of this, one State can not interfere with products imported from another State.

North Dakota has effective Pure Food Laws. Many other States have not. These other States can ship adulterated products into North Dakota under false names, and North Dakota can not prevent it. National legislation will compel such imported goods to be truthfully labeled.

After the passage of a National bill and its enforcement as a law, each State must itself determine whether the products manufactured and sold within its boundaries are to be free from adulterants or not, and whether the articles so produced are to be truthfully labeled, or allowed to pass under deceptive and fraudulent names.

National legislation makes it possible for each State to fully protect its citizens from adulterated food products.

Whether your State does this or not, depends upon the demands of its citizens. As far as food

adulteration is concerned, every man, woman and child is a citizen. Everyone eats. Even after the laws are passed, they may not be effectively enforced, until the American mother and housewife informs herself as to the purity and adulteration of food products, and rises in the strength of her new knowledge, demanding that she have the privilege of choosing what she prepares as food for those she rears and loves.

SWORN TESTIMONY

SWORN TESTIMONY

OF

Theodore Roosevelt

IN REGARD TO CANNED MEAT

“The canned roast beef was utterly and hopelessly unacceptable. I should say that, roughly, not a fifth of it was consumed. The cans when opened would show usually on top what looked like a layer of slime, a very disagreeable looking substance. The beef inside was stringy and coarse. It was like a bundle of fibres. Sometimes we could not stew it. . . . The great majority of men, if put upon it for two or three days, would become sick.”

This testimony was given to the Court of Inquiry appointed to investigate the “embalmed beef” of the Spanish war, by THEODORE ROOSEVELT, when Governor of the state of New York, and but shortly after he had been Lieutenant-Colonel of the First United States Volunteer Cavalry.

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